

0045339

MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2003  
OAK RIDGE, TENNESSEE 37831-7440

March 7, 1991

Ms. Joan Kessner  
Westinghouse Hanford Company  
Office of Sample Management  
2344 Stevens Drive  
Richland, Washington 99352



Dear Ms. Kessner:

Analytical Results Package on Project 90-036: 241-CX-71 Tank Investigation

Attached are the results on the 241-CX-71 Tank Investigation samples, Project 90-036, received into the Analytical Chemistry Department (ACD) laboratories on October 26, 1990. Also attached are the Chain of Custody records for the samples, a list detailing the protocol utilized in performing these analyses (in accordance with agreements between the OSM and K-25 ACD) and sample identification information.

The results are reported on ACD's AnaLis report format per letter dated December 20, 1990. All data quality objectives were satisfied on this project.

The total solids analysis on samples CX71L002 and CX71L004, and the TCLP extraction for volatile organic analysis on sample CX71L005 could not be completed due to receipt of insufficient sample.

ICP Metals

A Toxicity Characteristic Leaching Procedure (TCLP) extraction was performed on the samples and the leachate was analyzed for ICP metals in accordance with EPA-6010 protocol. All quality control criteria was applied to samples in the SDG. For this analysis, all instrument calibrations (SPCC and CCC) were within acceptable criteria. All internal matrix spike percent recoveries were within acceptable limits. Interference check samples results were within acceptable limits. Replicate analyses were conducted on samples in the SDG, and all relative percent deviations were within acceptable limits. All internal controls and check standards run during these analyses were well within the

acceptance limits. At present the ACD cannot report the ICP metals blank results through the AnaLis database; however, the calibration and reagent blanks for this run as generated by the ICP's data system are attached for your review.

#### Mercury

All the required quality control criteria was applied to the samples in the SDG. For this analysis all instrument calibrations (SPCC and CCC) were within acceptance criteria. The internal matrix spike percent recoveries for the TCLP analysis were within acceptance limits. Interference check samples results were within acceptable limits. Replicate analyses were conducted on samples in the SDG and all relative percent deviations were within acceptance limits. All internal controls and check standards run during these analyses were within the acceptance limits. At present the ACD cannot report the Mercury blank results through the AnaLis database, however it is required according to ACD QA/QC policy that no analysis result be reported for any element which is found in the prep blank above the data reporting limits. The raw data within the QA batch (SDG) for any particular analysis contains the prep blank data and is available upon request.

#### Semi-Volatiles: BNA

All the samples were extracted within the prescribed holding times except samples CX71L006, CX71L008, CX71L003, CX71L004, and CX71L004-MS which missed the extraction holding times by twenty (20) days and sample CX71L007 which missed the extraction holding time by thirty-eight (38) days. All the samples were analyzed within the prescribed holding times. The AnaLis database reported the extraction date in error for samples CX71L006 and CX71L008 on the BNA report summary page. The actual extraction date is correct on the first page of the AnaLis report for these samples. All surrogate standards criteria were within percent recovery acceptance limits except those flagged on the AnaLis report in accordance with CLP protocol. All DFTPP tune criteria were within acceptance criteria. All "CCC" and "SPCC" components met acceptance criteria for both the initial and continuing calibration check samples. All internal standard areas were within acceptance criteria. All matrix spikes and matrix spike duplicates were within the acceptance requirements. Sample CX71L004-MSD was not received in sufficient volume to allow for Semi-volatile analysis of the matrix spike duplicate.

#### Volatiles: VOA

All the samples were analyzed within the prescribed holding times except for sample CX71L004 and the associated matrix spike and matrix spike duplicate which missed the holding time by six (6) days. All surrogate standards criteria were within percent recovery acceptance limits. All BFB tune criteria were within acceptance criteria. All CCC and SPCC components met acceptance criteria for both the initial and continuing calibration check sample. All internal standard areas were within acceptance criteria. All matrix spikes and matrix spike duplicates were within the acceptance requirements.

#### Herbicides

As discussed in the data package for project 90-025, dated January 2, 1991, in performing the analysis for herbicides under the 8150 protocol the ACD encountered several problems with recoveries in a soil matrix. Therefore all

samples for this project were extracted using ether/acetone as the extraction solvent instead of diatomethane. All required quality control criteria were applied to these samples and were within acceptance limits. Sample CX71L004-MSD was not received in sufficient volume to allow for herbicide analysis of the matrix spike duplicate.

#### Pesticides

All required quality control criteria were applied to these samples and were within acceptance limits except the surrogate spike on sample PLY-0918-36. Sample CX71L004-MSD was not received in sufficient volume to allow for pesticide analysis of the matrix spike duplicate.

#### Wet Chemistry: Total Solids, TCLP Extraction

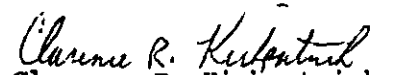
The TCLP extractions were conducted in accordance with the EPA-1311 procedure. The total solids analysis was conducted in accordance with EPA approved methodology. All instrument calibrations were within acceptable criteria. All internal controls were within criteria.

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Sincerely,



Deborah L. Amburgey  
Program Manager  
Hanford Support Program



Clarence R. Kirkpatrick  
Program Manager  
Waste Management Analysis



Roy W. Morrow  
Department Manager  
Analytical Chemistry Department (K-25)

#### Attachments

cc/attach: D.L.Amburgey  
S.R.Smith - RC

cc: N.P.Buddin  
S.W.Goza  
H.H.Sullivan

PROTOCOL UTILIZED FOR ANALYSES OF  
241-CX-71 TANK INVESTIGATION SAMPLES  
AND SAMPLE IDENTIFICATION FOR  
PROJECT 90-036

Analysis	Protocol
A. TCLP Extraction	EPA-1311
A. ICP Metals	EPA-6010
B. Mercury	EPA-7470
C. Total Solids	EPA-160.3

Table 1.1 - Sample Identification Table for Project 90-036: 241-CX-71 Tank Investigation.

Date Sam. Group Rec.	OSM Sample ID	Lab Sample ID	Matrix	Comments
10/26/90	CX71L005	901114-021	liquid	
	CX71L006	901114-022	sludge	
	CX71L007	901114-023	sludge	
	CX71L008	901114-024	sludge	
	CX71L002	901114-025	liquid	
	CX71L003	901114-026	sludge	
	CX71L004	901114-027	sludge	
	CX71L004-MS	901114-028	sludge	Matrix spike of 901114-027
	CX71L004-MSD	901114-029	sludge	Matrix spike duplicate of 901114-027
		901130-064	blank	TCLP blank for 901114-024 and 901114-026 through -028
		901130-065	blank	TCLP blank for 901114-022 and -023
		901204-147	blank	VOA blank for 901114-028 and -029
		901205-002	blank	VOA blank for 901114-022 through -024 and 901114-027
		901206-106	blank	Pesticide blank for 901114-022 through -024 and 901114-028
		901211-113	blank	BNA blank for 901114-026 through -028
		901211-114	blank	BNA blank for 901114-022 through -024
		901219-035	blank	Herbicide blank for 901114-024 and 901114-026 through -028

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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ANALIS ID: 901114-021      Project: G132 036L      Customer Sample ID: CX71L005  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 24-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 30-JAN-1991  
Material Description: LIQUID WASTE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090207	EPA-6010	Arsenic (TCLP)	<0.089	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Barium (TCLP)	0.45	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Cadmium (TCLP)	<0.0054	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Chromium (TCLP)	<0.018	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Lead (TCLP)	<0.089	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Selenium (TCLP)	<0.089	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Silver (TCLP)	<0.018	mg/L	VF BELT	01215A	15-DEC-1990
103208	EPA-7470	Mercury (TCLP)	<0.04	mg/L	LK BARKLEY	10114A1	25-JAN-1991
170907	EPA-1311	TCLP ZHE Extraction	XX		BD HARRIS	XX	28-NOV-1990
173607	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	28-NOV-1990
182107	EPA-160.3	Total Solids	20.0	mg/L	SD CALVIN	90-29	5-DEC-1990

\*\*\*\*\* Comments from the Wet Chemistry Laboratory \*\*\*\*\*

ALL OF THE SAMPLE WAS USED IN TCLP EXTRACTION. THEREFORE, WE WERE UNABLE TO PERFORM THE ZHE ANALYSIS.

Program Manager: D. L. Amburgey  
Date Approved: 7-FEB-1991

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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AnalIS ID: 901114-022      Project: G132 036S      Customer Sample ID: CX71L006  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 24-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 10-JAN-1991  
Material Description: SLUDGE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090208	EPA 3010	Arsenic (TCLP)	<0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Barium (TCLP)	<1.0	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Cadmium (TCLP)	<0.030	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Chromium (TCLP)	<0.10	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Lead (TCLP)	<0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Selenium (TCLP)	<0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Silver (TCLP)	<0.10	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10107A	10-JAN-1991
130708	EPA-8150	Prep (Herb- SW-846)	C		JR HUSKEY	2148	21-DEC-1990
132608	EPA-3510	Prep (Pest- SW-846-Funnel)	C			2131	7-DEC-1990
133008	CLP10/86 SVD5	Prep (BNA- CLP)	C		MF MCMYLER	1834	13-DEC-1990
170903	EPA-1311	TCLP ZHE Extraction	C		BD HARRIS	90-6	30-NOV-1990
171003	EPA-1311	TCLP BNA Extraction	C		BD HARRIS	90-6	30-NOV-1990
173603	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	30-NOV-1990
182108	EPA-160.3	Total Solids	93.9	%	SD CALVIN	90-29	6-DEC-1990

Prep (BNA- CLP)

Analyst = MF MCMYLER  
pH = 7  
Date Extracted = 11-DEC-1990  
Sample Volume Extracted (mL) = 220  
Extraction Method = Liquid/Liquid Extractor  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 901211-114

Prep (Herb- SW-846)

Analyst = JR HUSKEY  
Date Extracted = 21-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Ether  
Extraction Cleanup = Florisil, Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901219-035

Prep (Post- SW-846-Funnel)

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Analyst =  
pH = 8  
Date Extracted = 7-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901206-106

\*\*\*\*\* Comments from the Organic Mass Spectroscopy Laboratory \*\*\*\*\*

THIS SAMPLE'S METHOD BLANK FAILED CLP ACCEPTANCE CRITERIA HOWEVER  
INSUFFICIENT SAMPLE VOLUME PREVENTED REEXTRACTION FOR ANALYSIS.

Program Manager: D. L. Amburgey

Date Approved: 14-JAN-1991

AnalIS ID: 901114-022  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L006  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## HERBICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 27-DEC-1990  
Preparation Procedure Number: EPA-8150  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 26-DEC-1990  
Analysis Procedure Number: EPA-8150  
Dilution Factor: 1.0  
Analyst: RE HOWARD  
QA File Number: GC 0382

CAS	ug/L	CAS	ug/L
94-75-7 2,4-D	20.0U		
93-72-1 2,4,5-TP (Silvex)	2.0U		

## Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.  
B - Analyte was found in the reagent blank as well as the sample.  
J - Indicates an estimated value.  
ND - Not detected.  
A - Aldol condensation product.  
D - Secondary dilution.  
E - Exceeds initial calibration range.



AnalIS ID: 901114-022  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L006  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## PESTICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 14-DEC-1990  
Preparation Procedure Number: EPA-3510  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[ ] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990  
Analysis Procedure Number: EPA-8080  
Dilution Factor: 1.0  
Analyst: EK BROWN  
QA File Number: GC 0369

CAS		ug/L	CAS		ug/L
72-20-8	Endrin	2.00U			
58-89-9	gamma-BHC(Lindane)	1.00U			
72-43-5	Methoxychlor	10.0U			
8001-35-2	Toxaphene	20.0U			
5103-71-9	alpha-Chlordane	10.0U			
5103-74-2	gamma-Chlordane	10.0U			
75-44-8	Heptachlor	1.00U			
1024-57-3	Heptachlor Epoxide	1.00U			

## Data Reporting Qualifiers:

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B - Analyte was found in the reagent blank as well as the sample.  
J - Indicates an estimated value.  
ND - Not detected.  
A - Aldol condensation product.  
D - Secondary dilution.  
E - Exceeds initial calibration range.

AnalIS ID: 901114-022  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >07549  
 Instrument ID: 70-2  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L006  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## VOA-Volatile Organic Compounds - Leachate(CLP)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901205-002  
 [] : Result has been Corrected for Spike

Date Analyzed: 5-DEC-1990  
 Analysis Procedure Number: CLP-624  
 Dilution Factor: 1.0  
 Analyst: LM POTTER  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	16 B	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	200 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	3 J	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	10U	1330-20-7	Xylene (total)	1 J
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

## Data Reporting Qualifiers:

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 J - Indicates an estimated value.  
 ND - Not detected.  
 A - Aldol condensation product.  
 D - Secondary dilution.  
 E - Exceeds initial calibration range.

ANALIS ID: 901114-022  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >14402  
 Instrument ID: HP-5985  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L006  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 10-JAN-1991  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-114  
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
108-95-2	Phenol	110 B	106-47-8	4-Chloroaniline	45U
111-44-4	bis(2-Chloroethyl)ether	45U	87-68-3	Hexachlorobutadiene	45U
95-57-8	2-Chlorophenol	45U	59-50-7	4-Chloro-3-methylphenol	45U
541-73-1	1,3-Dichlorobenzene	45U	91-57-6	2-Methylnaphthalene	45U
106-46-7	1,4-Dichlorobenzene	45U	77-47-4	Hexachlorocyclopentadiene	45U
100-51-6	Benzyl Alcohol	45U	88-06-2	2,4,6-Trichlorophenol	45U
95-50-1	1,2-Dichlorobenzene	45U	95-95-4	2,4,5-Trichlorophenol	230U
95-48-7	2-Methylphenol	45U	91-58-7	2-Chloronaphthalene	45U
108-60-1	bis(2-Chloroisopropyl)ether	45U	88-74-4	2-Nitroaniline	230U
106-44-5	4-Methylphenol	45U	131-11-3	Dimethylphthalate	45U
621-64-7	N-Nitroso-di-n-propylamine	45U	208-96-8	Acenaphthylene	45U
67-72-1	Hexachloroethane	45U	99-09-2	3-Nitroaniline	230U
98-95-3	Nitrobenzene	45U	83-32-9	Acenaphthene	45U
78-59-1	Isophorone	45U	51-28-5	2,4-Dinitrophenol	230U
88-75-5	2-Nitrophenol	45U	100-02-7	4-Nitrophenol	230U
105-67-9	2,4-Dimethylphenol	45U	132-64-9	Dibenzofuran	45U
65-85-0	Benzoic Acid	230U	121-14-2	2,4-Dinitrotoluene	45U
111-91-1	bis(2-Chloroethoxy)methane	45U	606-20-2	2,6-Dinitrotoluene	45U
120-83-2	2,4-Dichlorophenol	45U	84-66-2	Diethylphthalate	83 B
120-82-1	1,2,4-Trichlorobenzene	45U	7005-72-3	4-Chlorophenyl-phenylether	45U
91-20-3	Naphthalene	45U	86-73-7	Fluorene	45U

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- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901114-022  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >14402  
 Instrument ID: HP-5985  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L006  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BGA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 10-JAN-1991  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-114  
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
100-01-6	4-Nitroaniline	230U	53-70-3	Dibenz(a,h)anthracene	45U
534-52-1	4,6-Dinitro-2-methylphenol	230U	191-24-2	Benzo(g,h,i)perylene	45U
86-30-6	N-Nitrosodiphenylamine	45U			
101-55-3	4-Bromophenyl-phenylether	45U			
118-74-1	Hexachlorobenzene	45U			
87-86-5	Pentachlorophenol	230U			
85-01-8	Phenanthrene	45U			
120-12-7	Anthracene	45U			
84-74-2	Di-n-butylphthalate	45U			
206-44-0	Fluoranthene	45U			
129-00-0	Pyrene	45U			
85-68-7	Butylbenzylphthalate	45U			
91-94-1	3,3'-Dichlorobenzidine	91U			
56-55-3	Benzo(a)anthracene	45U			
117-81-7	bis(2-Ethylhexyl)phthalate	45U			
218-01-9	Chrysene	45U			
117-84-0	Di-n-octylphthalate	45U			
205-99-2	Benzo(b)fluoranthene	45U			
207-08-9	Benzo(k)fluoranthene	45U			
50-32-8	Benzo(a)pyrene	45U			
193-39-5	Indeno(1,2,3-cd)pyrene	45U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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AnalIS ID: 901114-023      Project: G132 036S      Customer Sample ID: CX71L007  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 24-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 10-JAN-1991  
Material Description: SLUDGE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090208	EPA 3010	Arsenic (TCLP)	R <0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Barium (TCLP)	R <1.0	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Cadmium (TCLP)	R <0.030	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Chromium (TCLP)	R <0.10	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Lead (TCLP)	R <0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	Selenium (TCLP)	R <0.50	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
	EPA 3010	silver (TCLP)	R <0.10	mg/L	DR WILSON	10109B	9-JAN-1991
	EPA 6010						
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10107A	10-JAN-1991
130708	EPA-8150	Prep (Herb- SW-846)	C		JR HUSKEY	2148	21-DEC-1990
132608	EPA-3510	Prep (Pest- SW-846-Funnel)	C			2131	7-DEC-1990
133008	CLP10/86 SVD5	Prep (BNA- CLP)	C		MF MCMYLER	1834	13-DEC-1990
170903	EPA-1311	TCLP ZHE Extraction	C		BD HARRIS	90-6	30-NOV-1990
171003	EPA-1311	TCLP BNA Extraction	C		BD HARRIS	90-6	30-NOV-1990
173603	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	30-NOV-1990
182108	EPA-160.3	Total Solids	94.5	%	SD CALVIN	90-29	6-DEC-1990

Prep (BNA- CLP)

Analyst = MF MCMYLER  
pH = 8  
Date Extracted = 11-DEC-1990  
Sample Volume Extracted (mL) = 170  
Extraction Method = Liquid/Liquid Extractor  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 901211-114

Prep (Herb- SW-846)

Analyst = JR HUSKEY  
Date Extracted = 21-DEC-1990  
Sample Volume Extracted (mL) = 24  
Extraction Method = Separatory Funnel  
Extraction Solvent = Ether  
Extraction Cleanup = Florisil, Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901219-035

Prep (Pest- SW-846-Funnel)

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Analyst =  
pH = 8  
Date Extracted = 7-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901206-106

Program Manager: D. L. Amburgey  
Date Approved: 14-JAN-1991

AnalIS ID: 901114-023  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L007  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## HERBICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 27-DEC-1990  
Preparation Procedure Number: EPA-8150  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 26-DEC-1990  
Analysis Procedure Number: EPA-8150  
Dilution Factor: 1.0  
Analyst: RE HOWARD  
QA File Number: GC 0382

CAS		ug/L	CAS		ug/L
94-75-7	2,4-D	40.0U			
93-72-1	2,4,5-TP (Silvex)	4.0U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-023  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L007  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## PESTICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 14-DEC-1990  
Preparation Procedure Number: EPA-3510  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990  
Analysis Procedure Number: EPA-8080  
Dilution Factor: 1.0  
Analyst: EK BROWN  
QA File Number: GC 0369

CAS		ug/L	CAS		ug/L
72-20-8	Endrin	2.00U			
58-89-9	gamma-BHC(Lindane)	1.00U			
72-43-5	Methoxychlor	10.0U			
8001-35-2	Toxaphene	20.0U			
5103-71-9	alpha-Chlordane	10.0U			
5103-74-2	gamma-Chlordane	10.0U			
76-44-8	Heptachlor	1.00U			
1024-57-3	Heptachlor Epoxide	1.00U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.



AnalIS ID: 901114-023  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >07550  
 Instrument ID: 70-2  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L007  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## VOA-Volatile Organic Compounds - Leachate(CLP)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901205-002  
 [] : Result has been Corrected for Spike

Date Analyzed: 5-DEC-1990  
 Analysis Procedure Number: CLP-624  
 Dilution Factor: 1.0  
 Analyst: LM POTTER  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	14 B	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	25 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	2 J
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	50	1330-20-7	Xylene (total)	3 J
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-023  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >14420  
 Instrument ID: HP-5985  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L007  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-114  
 [] : Result has been Corrected for Spike

Date Analyzed: 19-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
108-95-2	Phenol	59U	106-47-8	4-Chloroaniline	59U
111-44-4	bis(2-Chloroethyl)ether	59U	87-68-3	Hexachlorobutadiene	59U
95-57-8	2-Chlorophenol	59U	59-50-7	4-Chloro-3-methylphenol	59U
541-73-1	1,3-Dichlorobenzene	59U	91-57-6	2-Methylnaphthalene	59U
106-46-7	1,4-Dichlorobenzene	59U	77-47-4	Hexachlorocyclopentadiene	59U
100-51-6	Benzyl Alcohol	59U	88-06-2	2,4,6-Trichlorophenol	59U
95-50-1	1,2-Dichlorobenzene	59U	95-95-4	2,4,5-Trichlorophenol	290U
95-48-7	2-Methylphenol	59U	91-58-7	2-Chloronaphthalene	59U
108-60-1	bis(2-Chloroisopropyl)ether	59U	88-74-4	2-Nitroaniline	290U
106-44-5	4-Methylphenol	59U	131-11-3	Dimethylphthalate	59U
621-64-7	N-Nitroso-di-n-propylamine	59U	208-96-8	Acenaphthylene	59U
67-72-1	Hexachloroethane	59U	99-09-2	3-Nitroaniline	290U
98-95-3	Nitrobenzene	59U	83-32-9	Acenaphthene	59U
78-59-1	Isophorone	59U	51-28-5	2,4-Dinitrophenol	290U
88-75-5	2-Nitrophenol	59U	100-02-7	4-Nitrophenol	290U
105-67-9	2,4-Dimethylphenol	59U	132-64-9	Dibenzofuran	59U
65-85-0	Benzoic Acid	290U	121-14-2	2,4-Dinitrotoluene	59U
111-91-1	bis(2-Chloroethoxy)methane	59U	606-20-2	2,6-Dinitrotoluene	59U
120-83-2	2,4-Dichlorophenol	59U	84-66-2	Diethylphthalate	240
120-82-1	1,2,4-Trichlorobenzene	59U	7005-72-3	4-Chlorophenyl-phenylether	59U
91-20-3	Naphthalene	59U	86-73-7	Fluorene	59U

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901114-023  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >14420  
 Instrument ID: HP-5985  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L007  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## BNA-Base/Neutral/Acid Compounds-Leachate (CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-114  
 [] : Result has been Corrected for Spike

Date Analyzed: 19-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
100-01-6	4-Nitroaniline	290U	53-70-3	Dibenz(a,h)anthracene	59U
534-52-1	4,6-Dinitro-2-methylphenol	290U	191-24-2	Benzo(g,h,i)perylene	59U
86-30-6	N-Nitrosodiphenylamine	59U			
101-55-3	4-Bromophenyl-phenylether	59U			
118-74-1	Hexachlorobenzene	59U			
87-86-5	Pentachlorophenol	290U			
85-01-8	Phenanthrene	59U			
120-12-7	Anthracene	59U			
84-74-2	Di-n-butylphthalate	59U			
206-44-0	Fluoranthene	59U			
129-00-0	Pyrene	59U			
85-68-7	Butylbenzylphthalate	59U			
91-94-1	3,3'-Dichlorobenzidine	120U			
56-55-3	Benzo(a)anthracene	59U			
117-81-7	bis(2-Ethylhexyl)phthalate	59U			
218-01-9	Chrysene	59U			
117-84-0	Di-n-octylphthalate	59U			
205-99-2	Benzo(b)fluoranthene	59U			
207-08-9	Benzo(k)fluoranthene	59U			
50-32-8	Benzo(a)pyrene	59U			
193-39-5	Indeno(1,2,3-cd)pyrene	59U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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ANALIS ID: 901114-024      Project: G132 036S      Customer Sample ID: CX71L008  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 24-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 10-JAN-1991  
Material Description: SLUDGE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090207	EPA-6010	Arsenic (TCLP)	<0.050	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Barium (TCLP)	0.14	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Cadmium (TCLP)	<0.0030	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Chromium (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Lead (TCLP)	<0.050	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Selenium (TCLP)	0.077	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Silver (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10107A	10-JAN-1991
130708	EPA-8150	Prep (Herb- SW-846)	C		JR HUSKEY	2148	21-DEC-1990
132608	EPA-3510	Prep (Pest- SW-846-Funnel)	C			2131	7-DEC-1990
133008	CLP10/86 SVD5	Prep (BNA- CLP)	C		MF MCMYLER	1834	13-DEC-1990
170903	EPA-1311	TCLP ZHE Extraction	C		BD HARRIS	90-6	30-NOV-1990
171003	EPA-1311	TCLP BNA Extraction	C		BD HARRIS	90-6	30-NOV-1990
173603	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	30-NOV-1990
182108	EPA-160.3	Total Solids	99.1	%	SD CALVIN	90-29	6-DEC-1990

Prep (BNA- CLP)

Analyst = MF MCMYLER  
pH = 7  
Date Extracted = 11-DEC-1990  
Sample Volume Extracted (mL) = 260  
Extraction Method = Liquid/Liquid Extractor  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 901211-114

Prep (Herb- SW-846)

Analyst = JR HUSKEY  
Date Extracted = 21-DEC-1990  
Sample Volume Extracted (mL) = 41  
Extraction Method = Separatory Funnel  
Extraction Solvent = Ether  
Extraction Cleanup = Florisil, Sodium Sulfate  
Final Volume of Extract (mL) = 10

Associated Blank = 901219-035

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Prep (East- SW-846-Funnel)

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Analyst =  
pH = 8  
Date Extracted = 7-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901206-106

\*\*\*\*\* Comments from the Organic Mass Spectroscopy Laboratory \*\*\*\*\*

THIS SAMPLE'S METHOD BLANK FAILED CLP ACCEPTANCE CRITERIA HOWEVER  
INSUFFICIENT SAMPLE VOLUME PREVENTED REEXTRACTION FOR ANALYSIS.

Program Manager: D. L. Amburgey  
Date Approved: 14-JAN-1991

AnalIS ID: 901114-024  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L008  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## HERBICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 27-DEC-1990  
Preparation Procedure Number: EPA-8150  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 26-DEC-1990  
Analysis Procedure Number: EPA-8150  
Dilution Factor: 1.0  
Analyst: RE HOWARD  
QA File Number: GC 0382

CAS		ug/L	CAS		ug/L
94-75-7	2,4-D	25.0U			
93-72-1	2,4,5-TP (Silvex)	2.5U			

## Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.  
B - Analyte was found in the reagent blank as well as the sample.  
J - Indicates an estimated value.  
ND - Not detected.  
A - Aldol condensation product.  
D - Secondary dilution.  
E - Exceeds initial calibration range.

AnalIS ID: 901114-024  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L008  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## PESTICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 14-DEC-1990  
Preparation Procedure Number: EPA-3510  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[ ] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990  
Analysis Procedure Number: EPA-8080  
Dilution Factor: 1.0  
Analyst: EK BROWN  
QA File Number: GC 0369

CAS		ug/L	CAS		ug/L
72-20-8	Endrin	2.00U			
58-89-9	gamma-BHC(Lindane)	1.00U			
72-43-5	Methoxychlor	10.0U			
8001-35-2	Toxaphene	20.0U			
5103-71-9	alpha-Chlordane	10.0U			
5103-74-2	gamma-Chlordane	10.0U			
76-44-8	Heptachlor	1.00U			
1024-57-3	Heptachlor Epoxide	1.00U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.  
B - Analyte was found in the reagent blank as well as the sample.  
J - Indicates an estimated value.  
ND - Not detected.  
A - Aldol condensation product.  
D - Secondary dilution.  
E - Exceeds initial calibration range.

ANALIS ID: 901114-024  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: <07551  
 Instrument ID: 70-2  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L008  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## VOA-Volatile Organic Compounds - Leachate (CLP)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901205-002  
 [] : Result has been Corrected for Spike

Date Analyzed: 5-DEC-1990  
 Analysis Procedure Number: CLP-624  
 Dilution Factor: 1.0  
 Analyst: LM POTTER  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	13 B	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	24 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	46	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.



AnalIS ID: 901114-024  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >14400  
 Instrument ID: HP-5985  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L008  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 10-JAN-1991  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-114  
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
108-95-2	Phenol	62 B	106-47-8	4-Chloroaniline	38U
111-44-4	bis(2-Chloroethyl)ether	38U	87-68-3	Hexachlorobutadiene	38U
95-57-8	2-Chlorophenol	38U	59-50-7	4-Chloro-3-methylphenol	38U
541-73-1	1,3-Dichlorobenzene	38U	91-57-6	2-Methylnaphthalene	38U
106-46-7	1,4-Dichlorobenzene	38U	77-47-4	Hexachlorocyclopentadiene	38U
100-51-6	Benzyl Alcohol	38U	88-06-2	2,4,6-Trichlorophenol	38U
95-50-1	1,2-Dichlorobenzene	38U	95-95-4	2,4,5-Trichlorophenol	190U
95-48-7	2-Methylphenol	38U	91-58-7	2-Chloronaphthalene	38U
108-60-1	bis(2-Chloroisopropyl)ether	38U	88-74-4	2-Nitroaniline	190U
106-44-5	4-Methylphenol	38U	131-11-3	Dimethylphthalate	38U
621-64-7	N-Nitroso-di-n-propylamine	38U	208-96-8	Acenaphthylene	38U
67-72-1	Hexachloroethane	38U	99-09-2	3-Nitroaniline	190U
98-95-3	Nitrobenzene	38U	83-32-9	Acenaphthene	38U
78-59-1	Isophorone	38U	51-28-5	2,4-Dinitrophenol	190U
88-75-5	2-Nitrophenol	38U	100-02-7	4-Nitrophenol	190U
105-67-9	2,4-Dimethylphenol	38U	132-64-9	Dibenzofuran	38U
65-85-0	Benzoic Acid	190U	121-14-2	2,4-Dinitrotoluene	38U
111-91-1	bis(2-Chloroethoxy)methane	38U	606-20-2	2,6-Dinitrotoluene	38U
120-83-2	2,4-Dichlorophenol	38U	84-66-2	Diethylphthalate	38U
120-82-1	1,2,4-Trichlorobenzene	38U	7005-72-3	4-Chlorophenyl-phenylether	38U
91-20-3	Naphthalene	38U	86-73-7	Fluorene	38U

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-024  
Laboratory: Organic Mass Spectroscopy Laboratory  
File ID: >14400  
Instrument ID: HP-5985  
Authorized By: D. C. Canada

Customer Sample ID: CX71L008  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 10-JAN-1991  
Preparation Procedure Number: CLP10/86 SVD5  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank: 901211-114  
[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
Analysis Procedure Number: CLP-625  
Dilution Factor: 1.0  
Analyst: JW SAUNDERS  
QA File Number: NA

CAS		ug/L	CAS		ug/L
100-01-6	4-Nitroaniline	190U	53-70-3	Dibenz(a,h)anthracene	38U
534-52-1	4,6-Dinitro-2-methylphenol	190U	191-24-2	Benzo(g,h,i)perylene	38U
86-30-6	N-Nitrosodiphenylamine	38U			
101-55-3	4-Bromophenyl-phenylether	38U			
118-74-1	Hexachlorobenzene	38U			
87-86-5	Pentachlorophenol	190U			
85-01-8	Phenanthrene	38U			
120-12-7	Anthracene	38U			
84-74-2	Di-n-butylphthalate	38U			
206-44-0	Fluoranthene	38U			
129-00-0	Pyrene	38U			
85-68-7	Butylbenzylphthalate	38U			
91-94-1	3,3'-Dichlorobenzidine	77U			
56-55-3	Benzo(a)anthracene	38U			
117-81-7	bis(2-Ethylhexyl)phthalate	38U			
218-01-9	Chrysene	38U			
117-84-0	Di-n-octylphthalate	38U			
205-99-2	Benzo(b)fluoranthene	38U			
207-08-9	Benzo(k)fluoranthene	38U			
50-32-8	Benzo(a)pyrene	38U			
193-39-5	Indeno(1,2,3-cd)pyrene	38U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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AnalIS ID: 901114-025      Project: G132 036L      Customer Sample ID: CX71L002  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 23-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 21-JAN-1991  
Material Description: LIQUID WASTE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090207	EPA-6010	Arsenic (TCLP)	<0.056	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Barium (TCLP)	0.28	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Cadmium (TCLP)	<0.0033	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Chromium (TCLP)	<0.011	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Lead (TCLP)	<0.056	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Selenium (TCLP)	<0.056	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Silver (TCLP)	0.015	mg/L	VF BELT	01215A	15-DEC-1990
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10114A	17-JAN-1991
173607	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	28-NOV-1990
182107	EPA-160.3	Total Solids	X	mg/L	JC OSBORNE	XX	12-DEC-1990

\*\*\*\*\* Comments from the Wet Chemistry Laboratory \*\*\*\*\*

UNABLE TO RUN TOTAL SOLIDS, DUE TO INSUFFICIENT AMOUNT OF SAMPLE. JO

Program Manager: D. L. Amburgey  
Date Approved: 22-JAN-1991

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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AnalIS ID: 901114-026      Project: G132 036S      Customer Sample ID: CX71L003  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 23-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 10-JAN-1991  
Material Description: SLUDGE      [ ] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090207	EPA-6010	Arsenic (TCLP)	<0.050	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Barium (TCLP)	0.37	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Cadmium (TCLP)	<0.0030	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Chromium (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Lead (TCLP)	<0.050	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Selenium (TCLP)	0.12	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Silver (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10107A	10-JAN-1991
130708	EPA-8150	Prep (Herb- SW-846)	C		JR HUSKEY	2148	21-DEC-1990
132608	EPA-3510	Prep (Pest- SW-846-Funnel)	C			2131	7-DEC-1990
133008	CLP10/86 SVD5	Prep (BNA- CLP)	C		MF MCMYLER	1832	11-DEC-1990
170903	EPA-1311	TCLP ZHE Extraction	C		BD HARRIS	90-6	30-NOV-1990
171003	EPA-1311	TCLP BNA Extraction	C		BD HARRIS	90-6	30-NOV-1990
173603	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	30-NOV-1990
182108	EPA-160.3	Total Solids	91.7	%	SD CALVIN	90-29	6-DEC-1990

Prep (BNA- CLP)

Analyst = MF MCMYLER  
pH = 7  
Date Extracted = 11-DEC-1990  
Sample Volume Extracted (mL) = 240  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 901211-113

Prep (Herb- SW-846)

Analyst = JR HUSKEY  
Date Extracted = 21-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Ether  
Extraction Cleanup = Florisil, Sodium Sulfate  
Final Volume of Extract (mL) = 10

Associated Blank = 901219-035

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Prep (Rest- SW-846-Funnel)

Analyst =  
pH = 4  
Date Extracted = 7-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901206-106

Program Manager: D. L. Amburgey  
Date Approved: 14-JAN-1991

AnalIS ID: 901114-026  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L003  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## HERBICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 27-DEC-1990  
Preparation Procedure Number: EPA-8150  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 26-DEC-1990  
Analysis Procedure Number: EPA-8150  
Dilution Factor: 1.0  
Analyst: RE HOWARD  
QA File Number: GC 0382

CAS		ug/L	CAS		ug/L
94-75-7	2,4-D	20.0U			
93-72-1	2,4,5-TP (Silvex)	2.0U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-026  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX711003  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## PESTICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 14-DEC-1990  
Preparation Procedure Number: EPA-3510  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990  
Analysis Procedure Number: EPA-8080  
Dilution Factor: 1.0  
Analyst: EK BROWN  
QA File Number: GC 0369

CAS		ug/L	CAS		ug/L
72-20-8	Endrin	2.00U			
58-89-9	gamma-BHC(Lindane)	1.00U			
72-43-5	Methoxychlor	10.0U			
8001-35-2	Toxaphene	20.0U			
5103-71-9	alpha-Chlordane	10.0U			
5103-74-2	gamma-Chlordane	10.0U			
76-44-8	Heptachlor	1.00U			
1024-57-3	Heptachlor Epoxide	1.00U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.  
B - Analyte was found in the reagent blank as well as the sample.  
J - Indicates an estimated value.  
ND - Not detected.  
A - Aldol condensation product.  
D - Secondary dilution.  
E - Exceeds initial calibration range.

AnalIS ID: 901114-026  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >07552  
 Instrument ID: 70-2  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L003  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 26-OCT-1990

## VOA-Volatile Organic Compounds - Leachate(CLP)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901205-002  
 [] : Result has been Corrected for Spike

Date Analyzed: 5-DEC-1990  
 Analysis Procedure Number: CLP-624  
 Dilution Factor: 1.0  
 Analyst: LM POTTER  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	16 B	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	26 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	52	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.



ANALIS ID: 901114-026  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: 10642  
 Instrument ID: 5970#3  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L003  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-113  
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
108-95-2	Phenol	42U	106-47-8	4-Chloroaniline	42U
111-44-4	bis(2-Chloroethyl)ether	42U	87-68-3	Hexachlorobutadiene	42U
95-57-8	2-Chlorophenol	42U	59-50-7	4-Chloro-3-methylphenol	42U
541-73-1	1,3-Dichlorobenzene	42U	91-57-6	2-Methylnaphthalene	42U
106-46-7	1,4-Dichlorobenzene	42U	77-47-4	Hexachlorocyclopentadiene	42U
100-51-6	Benzyl Alcohol	42U	88-06-2	2,4,6-Trichlorophenol	42U
95-50-1	1,2-Dichlorobenzene	42U	95-95-4	2,4,5-Trichlorophenol	210U
95-48-7	2-Methylphenol	42U	91-58-7	2-Chloronaphthalene	42U
108-60-1	bis(2-Chloroisopropyl)ether	42U	88-74-4	2-Nitroaniline	210U
106-44-5	4-Methylphenol	42U	131-11-3	Dimethylphthalate	42U
621-64-7	N-Nitroso-di-n-propylamine	42U	208-96-8	Acenaphthylene	42U
67-72-1	Hexachloroethane	42U	99-09-2	3-Nitroaniline	210U
98-95-3	Nitrobenzene	42U	83-32-9	Acenaphthene	42U
78-59-1	Isophorone	42U	51-28-5	2,4-Dinitrophenol	210U
88-75-5	2-Nitrophenol	42U	100-02-7	4-Nitrophenol	210U
105-67-9	2,4-Dimethylphenol	42U	132-64-9	Dibenzofuran	42U
65-85-0	Benzoic Acid	210U	121-14-2	2,4-Dinitrotoluene	42U
111-91-1	bis(2-Chloroethoxy)methane	42U	606-20-2	2,6-Dinitrotoluene	42U
120-83-2	2,4-Dichlorophenol	42U	84-66-2	Diethylphthalate	42U
120-82-1	1,2,4-Trichlorobenzene	42U	7005-72-3	4-Chlorophenyl-phenylether	42U
91-20-3	Naphthalene	42U	86-73-7	Fluorene	42U

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901114-026  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: 10642  
 Instrument ID: 5970#3  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L003  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

RNA-Base/Neutral/Acid Compounds-Leachate (CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-113  
 [ ] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
100-01-6	4-Nitroaniline	210U	53-70-3	Dibenz(a,h)anthracene	42U
534-52-1	4,6-Dinitro-2-methylphenol	210U	191-24-2	Benzo(g,h,i)perylene	42U
86-30-6	N-Nitrosodiphenylamine	42U			
101-55-3	4-Bromophenyl-phenylether	42U			
118-74-1	Hexachlorobenzene	42U			
87-86-5	Pentachlorophenol	210U			
85-01-8	Phenanthrene	42U			
120-12-7	Anthracene	42U			
84-74-2	Di-n-butylphthalate	42U			
206-44-0	Fluoranthene	42U			
129-00-0	Pyrene	42U			
85-68-7	Butylbenzylphthalate	42U			
91-94-1	3,3'-Dichlorobenzidine	83U			
56-55-3	Benzo(a)anthracene	42U			
117-81-7	bis(2-Ethylhexyl)phthalate	42U			
218-01-9	Chrysene	42U			
117-84-0	Di-n-octylphthalate	42U			
205-99-2	Benzo(b)fluoranthene	42U			
207-08-9	Benzo(k)fluoranthene	42U			
50-32-8	Benzo(a)pyrene	42U			
193-39-5	Indeno(1,2,3-cd)pyrene	42U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

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AnalIS ID: 901114-027      Project: G132 036S      Customer Sample ID: CX71L004  
Customer: KESSNER/GOULD      Requisition Number:  
Date Sampled: 23-OCT-1990      Date Sample Received: 26-OCT-1990  
Sampled By:      Date Sample Completed: 10-JAN-1991  
Material Description: SLUDGE      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
090207	EPA-6010	Arsenic (TCLP)	<0.050	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Barium (TCLP)	<0.10	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Cadmium (TCLP)	<0.0030	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Chromium (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Lead (TCLP)	0.063	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Selenium (TCLP)	0.13	mg/L	VF BELT	01215A	15-DEC-1990
	EPA-6010	Silver (TCLP)	<0.010	mg/L	VF BELT	01215A	15-DEC-1990
103208	EPA-7470	Mercury (TCLP)	<0.002	mg/L	LK BARKLEY	10107A	10-JAN-1991
130708	EPA-8150	Prep (Herb- SW-846)	C		JR HUSKEY	2148	21-DEC-1990
132608	EPA-3510	Prep (Pest- SW-846-Funnel)	C			2131	7-DEC-1990
133008	CLP10/86 SVDS	Prep (BNA- CLP)	C		MF MCMYLER	1832	11-DEC-1990
170903	EPA-1311	TCLP ZHE Extraction	C		BD HARRIS	90-6	30-NOV-1990
171003	EPA-1311	TCLP BNA Extraction	C		BD HARRIS	90-6	30-NOV-1990
173603	EPA-1311	TCLP Metals Extraction	C		BD HARRIS	90-6	30-NOV-1990
182108	EPA-160.3	Total Solids	X	mg/L	JC OSBORNE	X	12-DEC-1990

Prep (BNA- CLP)

Analyst                   = MF MCMYLER  
pH                        = 7  
Date Extracted          = 11-DEC-1990  
Sample Volume Extracted (mL) = 300  
Extraction Method       = Separatory Funnel  
Extraction Solvent      = Methylene Chloride  
Extraction Cleanup      = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank         = 901211-113

Prep (Herb- SW-846)

Analyst                   = JR HUSKEY  
Date Extracted          = 21-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method       = Separatory Funnel  
Extraction Solvent      = Ether  
Extraction Cleanup      = Florisil, Sodium Sulfate  
Final Volume of Extract (mL) = 10

Associated Blank = 901219-035

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Prep (Pest- SW-846-Funnel)

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Analyst =  
pH = 8  
Date Extracted = 7-DEC-1990  
Sample Volume Extracted (mL) = 50  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 10  
Associated Blank = 901206-106

\*\*\*\*\* Comments from the Wet Chemistry Laboratory \*\*\*\*\*

UNABLE TO RUN TOTAL SOLIDS, DUE TO INSUFFICIENT AMOUNT OF SAMPLE. JO

Program Manager: D. L. Amburgey

Date Approved: 14-JAN-1991

## ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901114-027  
Laboratory: Gas / Liquid Chromatography Laboratory  
File ID:  
Instrument ID:  
Authorized By: D. S. ZINGG

Customer Sample ID: CX71L004  
Customer: KESSNER/GOULD  
Sample Matrix: SLUDGE  
Requisition Number:  
Date Sample Received: 14-NOV-1990

## HERBICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 27-DEC-1990  
Preparation Procedure Number: EPA-8150  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank:  
[] : Result has been Corrected for Spike

Date Analyzed: 26-DEC-1990  
Analysis Procedure Number: EPA-8150  
Dilution Factor: 1.0  
Analyst: RE HOWARD  
QA File Number: GC 0382

CAS	ug/L	CAS	ug/L
94-75-7 2,4-D	20.0U		
93-72-1 2,4,5-TP (Silvex)	2.0U		

## Data Reporting Qualifiers:

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- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

## ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901114-027  
 Laboratory: Gas / Liquid Chromatography Laboratory  
 File ID:  
 Instrument ID:  
 Authorized By: D. S. ZINGG

Customer Sample ID: CX71L004  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## PESTICIDES (EP-TOX) SLUDGE

Date Extracted/Prepared: 14-DEC-1990  
 Preparation Procedure Number: EPA-3510  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank:  
 [] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990  
 Analysis Procedure Number: EPA-8080  
 Dilution Factor: 1.0  
 Analyst: EK BROWN  
 QA File Number: GC 0369

CAS		ug/L	CAS		ug/L
72-20-8	Endrin	2.00U			
58-89-9	gamma-BHC(Lindane)	1.00U			
72-43-5	Methoxychlor	10.0U			
8001-35-2	Toxaphene	20.0U			
5103-71-9	alpha-Chlordane	10.0U			
5103-74-2	gamma-Chlordane	10.0U			
76-44-8	Heptachlor	1.00U			
1024-57-3	Heptachlor Epoxide	1.00U			

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- ND - Not detected.
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- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-027  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: 07553  
 Instrument ID: 5970#2  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L004  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## VOA-Volatile Organic Compounds - Leachate(CLP)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901205-002  
 [] : Result has been Corrected for Spike

Date Analyzed: 5-DEC-1990  
 Analysis Procedure Number: CLP-624  
 Dilution Factor: 1.0  
 Analyst: GL HUDDLESTON  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	14 B	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	100 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	7
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	54	1330-20-7	Xylene (total)	9
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

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- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901114-027  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: 10640  
 Instrument ID: 5970#3  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L004  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 901211-113  
 {} : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: NA

CAS		ug/L	CAS		ug/L
108-95-2	Phenol	33U	106-47-8	4-Chloroaniline	33U
111-44-4	bis(2-Chloroethyl)ether	33U	87-68-3	Hexachlorobutadiene	33U
95-57-8	2-Chlorophenol	33U	59-50-7	4-Chloro-3-methylphenol	33U
541-73-1	1,3-Dichlorobenzene	33U	91-57-6	2-Methylnaphthalene	33U
106-46-7	1,4-Dichlorobenzene	33U	77-47-4	Hexachlorocyclopentadiene	33U
100-51-6	Benzyl Alcohol	51	88-06-2	2,4,6-Trichlorophenol	33U
95-50-1	1,2-Dichlorobenzene	33U	95-95-4	2,4,5-Trichlorophenol	170U
95-48-7	2-Methylphenol	33U	91-58-7	2-Chloronaphthalene	31 J
108-60-1	bis(2-Chloroisopropyl)ether	33U	88-74-4	2-Nitroaniline	170U
106-44-5	4-Methylphenol	33U	131-11-3	Dimethylphthalate	33U
621-64-7	N-Nitroso-di-n-propylamine	33U	208-96-8	Acenaphthylene	33U
67-72-1	Hexachloroethane	33U	99-09-2	3-Nitroaniline	170U
98-95-3	Nitrobenzene	33U	83-32-9	Acenaphthene	33U
78-59-1	Isophorone	33U	51-28-5	2,4-Dinitrophenol	170U
88-75-5	2-Nitrophenol	33U	100-02-7	4-Nitrophenol	170U
105-67-9	2,4-Dimethylphenol	33U	132-64-9	Dibenzofuran	33U
65-85-0	Benzoic Acid	170U	121-14-2	2,4-Dinitrotoluene	33U
111-91-1	bis(2-Chloroethoxy)methane	33U	606-20-2	2,6-Dinitrotoluene	33U
120-83-2	2,4-Dichlorophenol	33U	84-66-2	Diethylphthalate	33U
120-82-1	1,2,4-Trichlorobenzene	33U	7005-72-3	4-Chlorophenyl-phenylether	33U
91-20-3	Naphthalene	3 J	86-73-7	Fluorene	33U

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AnaLIS ID: 901114-027  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: 10640  
 Instrument ID: 5970#3  
 Authorized By: D. C. Canada

Customer Sample ID: CX71L004  
 Customer: KESSNER/GOULD  
 Sample Matrix: SLUDGE  
 Requisition Number:  
 Date Sample Received: 14-NOV-1990

## BNA-Base/Neutral/Acid Compounds-Leachate(CLP)

Date Extracted/Prepared: 11-DEC-1990  
 Preparation Procedure Number: CLP10/86 SVD5  
 Percent Moisture:  
 Percent Moisture (decanted):

Date Analyzed: 13-DEC-1990  
 Analysis Procedure Number: CLP-625  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: NA

Associated Blank: 901211-113

[ ] : Result has been Corrected for Spike

CAS		ug/L	CAS		ug/L
100-01-6	4-Nitroaniline	170U	53-70-3	Dibenz(a,h)anthracene	33U
534-52-1	4,6-Dinitro-2-methylphenol	170U	191-24-2	Benzo(g,h,i)perylene	33U
86-30-6	N-Nitrosodiphenylamine	33U			
101-55-3	4-Bromophenyl-phenylether	33U			
118-74-1	Hexachlorobenzene	33U			
87-86-5	Pentachlorophenol	170U			
85-01-8	Phenanthrene	33U			
120-12-7	Anthracene	33U			
84-74-2	Di-n-butylphthalate	5 J			
206-44-0	Fluoranthene	33U			
129-00-0	Pyrene	33U			
85-68-7	Butylbenzylphthalate	33U			
91-94-1	3,3'-Dichlorobenzidine	67U			
56-55-3	Benzo(a)anthracene	33U			
117-81-7	bis(2-Ethylhexyl)phthalate	11 J			
218-01-9	Chrysene	33U			
117-84-0	Di-n-octylphthalate	33U			
205-99-2	Benzo(b)fluoranthene	33U			
207-08-9	Benzo(k)fluoranthene	33U			
50-32-8	Benzo(a)pyrene	33U			
193-39-5	Indeno(1,2,3-cd)pyrene	33U			

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- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Bill of Lading # RMW-7245

MARTIN MARIETTA ENERGY SYSTEMS, INC.

## CHAIN OF CUSTODY RECORD

STA #0018-90

ANALYTICAL CHEMISTRY DEPARTMENT

ACD/COC NO  
01411

[illegible]

COOLER RECEIPT FORM  
for SOP 2332

File with receiving  
and C-O-C records.

6

Date: 10-26-90 Shipper ID and Document No: 7342241244

Cooler ID if noted on outside of cooler: Westinghouse-Hanford

Project No: 6132 Subproject No: 036 Site Location: Hanford

Custody seal on cooler? ☒ Yes ☐ No

Condition of cooler acceptable? ☒ Yes ☐ No

Radioactive labels? ☒ Yes ☐ No

Hazardous labels? ☒ Yes ☐ No

Custody form(s) inside of cooler? ☒ Yes ☐ No

Was cooler required to be maintained at 4 deg C? ☒ Yes ☐ No

Sample containers intact? ☒ Yes ☐ No

Are containers those specified for requested parameters? ☒ Yes ☐ No

Date of login: 11-14-90

Lab assigned ID No: 901114-021

Thru -024

Custody seals dated and signed? ☒ Yes ☐ No

Prog. Mgr. notified of receipt of cooler? ☒ Yes ☐ No

Radioactivity recheck OK? ☒ Yes ☐ No

Samples properly labeled? ☒ Yes ☐ No

Custody form(s) properly completed and signed? ☒ Yes ☐ No

Thermometer inside of cooler? ☐ Yes ☒ No

Temperature of cooler: 7 deg C (X.X)

VOA containers free of bubbles? ☒ Yes ☐ No

Additional information needed from Prog. Mgr.? ☒ Yes ☐ No

NOTE: Nitrite-N, Nitrate-N, o-Phosphate-o-Phosphate-P have 48-hour holding time. LOG IN THESE FIRST - ASAP

The lab numbers plus the project number are used for tracking purposes.

Comments:

Signed: MLMSA

Company Contact Suzanne M. Loftus Telephone 509-373-3722  
Sample Collected by Suzanne M. Loftus Date 10-24-90 Time 1010, 1135, 1425  
Sample Locations 241-CX-71 Tank, 200 East, Hanford Site  
Ice Chest No. Alpha-5 Field Logbook and Page No. WHC-N-379 page 8-9  
Remarks \_\_\_\_\_

Bill of Lading No. RMW-7246 Offsite Property No. NA  
Method of Shipment Air  
Shipped to Martin Marietta, Oak Ridge, Tenn.  
Possible Sample Hazards sludge samples contain radioactivity.

## Sample Identification

1. CX-71-L-005  
1, 125 ml, Clear glass bottle, water  
Analysis: TCLP
2. CX-71-S-006  
1, 60 ml, Amber glass bottle, sludge  
Analysis: TCLP
3. CX-71-S-007  
1, 60 ml, Amber glass bottle, sludge  
Analysis: TCLP
4. CX-71-S-008  
1, 60 ml, Amber glass bottle, sludge  
Analysis: TCLP

## Chain of Possession

Relinquished by: <u>10-25-90 @ 11:45</u> <u>E.B. Gould</u>	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

TRACKING NUMBER

101

7342241244

## RECIPIENT'S COPY

<b>EXPRESS</b> 101 <b>7342241244</b>		Date <b>10-25-90</b>	
From (Your Name) Please Print <b>G.O. BONESS</b> Company <b>U.S. DEPT. OF ENERGY c/o</b> <b>ASTINBURGH MANOR</b> Street Address <b>1100 AREA 1143 PL</b> City State ZIP Required		Your Phone Number (Very Important) <b>(509) 376-7627</b> Department/Floor No.	
To (Recipient's Name) Please Print <b>C.R. KIRKPATRICK A-20</b> Company <b>U.S. DEPT. OF ENERGY c/o</b> <b>MARTIN MARIETTA ENERGY SYSTEMS</b> Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes) <b>OAK RIDGE GASEOUS DIFFUSION PLANT</b> <b>BLAIR ROAD, HIGHWAY 58</b> City State ZIP Required		Recipient's Phone Number (Very Important) <b>K-1004A</b> Department/Floor No. <b>7N</b> <b>37831-7440</b>	
YOUR INTERNAL BILLING REFERENCE INFORMATION (Up to 24 characters will appear on invoice.) <b>RADIOACTIVE MATERIAL EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL</b> <b>RW-7245 W81241 J812A</b>			
PAYMENT <input checked="" type="checkbox"/> Bill Sender <input type="checkbox"/> Bill Recipient's FedEx Acct No <input type="checkbox"/> Bill 3rd Party FedEx Acct No <input type="checkbox"/> Bill Credit Card <input type="checkbox"/> Cash		IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required	
<b>SERVICES</b> (Check only one box) Priority Overnight Service (Delivery by next business morning) <input checked="" type="checkbox"/> <b>YOUR PACKAGING</b> 51 <input type="checkbox"/> <input type="checkbox"/> <b>FEDEX LETTER</b> * 56 <input type="checkbox"/> <b>FEDEX LETTER</b> * <input type="checkbox"/> <b>FEDEX PAK</b> * 52 <input type="checkbox"/> <b>FEDEX PAK</b> * <input type="checkbox"/> <b>FEDEX BOX</b> 53 <input type="checkbox"/> <b>FEDEX BOX</b> <input type="checkbox"/> <b>FEDEX TUBE</b> 54 <input type="checkbox"/> <b>FEDEX TUBE</b> Economy Service (Economically Guaranteed Rate) (Delivery by next business day) <input type="checkbox"/> <b>ECONOMY SERVICE</b> Heavyweight Service (Not for use with large or bulky items) (Delivery by next business day) <input type="checkbox"/> <b>HEAVYWEIGHT</b> ** <input type="checkbox"/> <b>DEFERRED HEAVYWEIGHT</b> ** *Declared Value Limit \$100 **Call for delivery schedule.		<b>DELIVERY AND SPECIAL HANDLING</b> 1 <input type="checkbox"/> <b>HOLD FOR PICK UP</b> (if in box 1) 2 <input type="checkbox"/> <b>DELIVER WEEKDAY</b> 3 <input type="checkbox"/> <b>DELIVER SATURDAY</b> (if also charge) (not available for all services) 4 <input type="checkbox"/> <b>DANGEROUS GOODS</b> (if also charge) (not available for International FedEx shipments) 5 <input type="checkbox"/> <b>CONSTANT SUMMER/LANCE SVC (CSSL)</b> (if also charge) (Package Signature Not Applicable) 6 <input type="checkbox"/> <b>DRY ICE</b> (if also charge) 7 <input type="checkbox"/> <b>OTHER SPECIAL SERVICE</b> 8 <input type="checkbox"/> 9 <input type="checkbox"/> <b>SATURDAY PM &amp; HP</b> (if also charge) 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> <b>HOLIDAY DELIVERY</b> (if allowed) (if also charge)	
PACKAGES 1 Total 1		WEIGHT In Pounds 66 Total 66	
DIM SHIPMENT (Measurements in inches) 11 11 11 2 2 2 3 3 3		DIM SHIPMENT (Measurements in inches) 11 11 11 2 2 2 3 3 3	
Received By <b>X Patricia E. Ford</b> Date/Time Received <b>10/26/90</b> Release Signature <b>[Signature]</b> Date/Time <b>10/26/90</b>		Revision Date 11/80 <b>014</b>	

C

DISTRIBUTION ORIGINAL ACCOMPANIES SHIPMENT. COPY TO COORDINATOR OF FIELD FILES

COOLER RECEIPT FORM  
for SOP 2332File with receiving  
and C-O-C records.Date: 10/26/90 Shipper ID and Document No: 734224/255Cooler ID if noted on outside of cooler: Westinghouse HanfordProject No: 6132 Subproject No: 036 Site Location: HanfordCustody seal on cooler? ☒ Yes NoCondition of cooler acceptable? ☒ Yes NoRadioactive labels? ☒ Yes NoHazardous labels? ☒ Yes NoCustody form(s) inside of cooler? ☒ Yes NoWas cooler required to be maintained at 4 deg C? ☒ Yes NoSample containers intact? ☒ Yes NoAre containers those specified for requested parameters? ☒ Yes NoDate of login: 11-14-90Lab assigned ID No: 901114-025Thru -029Custody seals dated and signed? ☒ Yes NoProg. Mgr. notified of receipt of cooler? ☒ Yes NoRadioactivity recheck OK? ☒ Yes NoSamples properly labeled? ☒ Yes NoCustody form(s) properly completed and signed? ☒ Yes NoThermometer inside of cooler? Yes ☒ NoTemperature of cooler: 5 deg C (X.X)VOA containers free of bubbles? Yes ~~No~~Additional information needed from Prog. Mgr.? ☒ Yes No

NOTE: Nitrite-N, Nitrate-N, o-Phosphate-o-Phosphate-P have 48-hour holding time. LOG IN THESE FIRST - ASAP

The lab numbers plus the project number are used for tracking purposes.

Comments:

Signed: [Signature]

Company Contact Suzanne M. Loftus Telephone 509-373-3722  
Sample Collected by S.D. Summer Suzanne M. Loftus Date 10-23-90 Time 1225-1400  
Sample Locations 241-CX-71 Tank, 200 East, Hanford Site  
Ice Chest No. M0-1 (Igloo poly cooler) Field Logbook and Page No. WHC-N-379 page 4-7  
Remarks \_\_\_\_\_

Bill of Lading No. BMW 7243 Offsite Property No. N/A  
Method of Shipment Air delivery overnight service  
Shipped to Martin Marietta Energy Systems, Oak Ridge TN  
Possible Sample Hazards Radioactivity

## Sample Identification

1. CX 71-L-002

1, 125-ml glass bottle for TCLP  
Analysis

2. CX 71-S-003

1, 60-ml amber glass bottle of soil  
for TCLP analysis

3. CX 71-S-004

1, 60-ml amber glass bottle of soil  
for TCLP analysis

## Chain of Possession

Relinquished by: <u>10/23/90</u> <u>S.D. Summer</u> 1119	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:



QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL  
PACKAGE  
TRACKING NUMBER

7342241255

7342241255

RECIPIENT'S COPY

Date 10-24-90		Your Phone Number (Very Important) (509) 376-7627		To (Recipient's Name) Please Print K-1004A C.R. KIRKPATRICK A-20		Recipient's Phone Number (Very Important)	
JNESS DEPT. OF ENERGY c/o PO BOX 1970, G2-02 State: <i>Washington</i>		Department/Floor No <i>Waste House Hazardous Company P.O. Box 1970</i>		Company U.S. DEPT. OF ENERGY c/o MARTIN MARIETTA ENERGY SYSTEMS		Department/Floor No	
State: <i>WA</i>		ZIP Required <i>98004</i>		City OAK RIDGE		State: <i>TN</i>	
						ZIP Required 37831-7400	

BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice) 241 J812A MNI-7243				IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required			
<input type="checkbox"/> Bill Shipper's FedEx Acct No <input type="checkbox"/> Bill Recipient's FedEx Acct No <input type="checkbox"/> Bill 3rd Party FedEx Acct No <input type="checkbox"/> Bill Credit Card							

<b>SERVICES</b> (Check only, under lines) overnight <input type="checkbox"/> Standard Overnight Service 2nd day <input type="checkbox"/> 2nd Day Service 3rd day <input type="checkbox"/> 3rd Day Service 4th day <input type="checkbox"/> 4th Day Service 5th day <input type="checkbox"/> 5th Day Service 6th day <input type="checkbox"/> 6th Day Service 7th day <input type="checkbox"/> 7th Day Service 8th day <input type="checkbox"/> 8th Day Service 9th day <input type="checkbox"/> 9th Day Service 10th day <input type="checkbox"/> 10th Day Service 11th day <input type="checkbox"/> 11th Day Service 12th day <input type="checkbox"/> 12th Day Service 13th day <input type="checkbox"/> 13th Day Service 14th day <input type="checkbox"/> 14th Day Service 15th day <input type="checkbox"/> 15th Day Service 16th day <input type="checkbox"/> 16th Day Service 17th day <input type="checkbox"/> 17th Day Service 18th day <input type="checkbox"/> 18th Day Service 19th day <input type="checkbox"/> 19th Day Service 20th day <input type="checkbox"/> 20th Day Service 21st day <input type="checkbox"/> 21st Day Service 22nd day <input type="checkbox"/> 22nd Day Service 23rd day <input type="checkbox"/> 23rd Day Service 24th day <input type="checkbox"/> 24th Day Service		<b>DELIVERY AND SPECIAL HANDLING</b> 1 <input type="checkbox"/> HOLD FOR PICK-UP (if in box) 2 <input type="checkbox"/> DELIVER WEEKDAY 3 <input type="checkbox"/> DELIVER SATURDAY (if no charge) 4 <input type="checkbox"/> DANGEROUS GOODS (if no charge) 5 <input type="checkbox"/> CONSTANT SURVEILLANCE SVC (CSSS) 6 <input type="checkbox"/> DRY ICE 7 <input type="checkbox"/> OTHER SPECIAL SERVICE 8 <input type="checkbox"/> SATURDAY PICK UP 9 <input type="checkbox"/> MONDAY DELIVERY (if no charge)		<b>WEIGHT</b> 1 48 2 48 3 48 4 48 5 48 6 48 7 48 8 48 9 48 10 48 11 48 12 48 13 48 14 48 15 48 16 48 17 48 18 48 19 48 20 48 21 48 22 48 23 48 24 48		<b>IF HOLD FOR PICK-UP, Print FEDEX Address Here</b> Street Address City State ZIP Required 10-25-90 1025		<b>REVISION DATE 11/89</b> <b>FORMAT #014</b> <b>014</b>	
---	--	---	--	--	--	--	--	--	--